

What is Claimed is:

1. An antenna switch module comprising a switch circuit for switching between transmitting and/or receiving of a signal between an antenna and a transmitting portion and/or a receiving portion and having a shunt circuit, wherein a capacitor of the shunt circuit of said switch circuit is provided to a dielectric layered body, and remaining elements of said switch circuit are provided to a semiconductor chip mounted on said dielectric layered body.

2. The antenna switch module according to claim 1, wherein said semiconductor chip is mounted face down on a top surface of said dielectric layered body.

3. The antenna switch module according to claim 2, wherein an electrical connection between said semiconductor chip and said dielectric layered body is made in a surface of said semiconductor chip if projectively viewed from the top surface of said dielectric layered body.

4. The antenna switch module according to claim 1, wherein said semiconductor chip is mounted by wire bonding.

5. The antenna switch module according to claim 2 or 4, wherein said dielectric layered body has a plurality of dielectric sheets including a first dielectric sheet on which a first electrode pattern connected to a ground potential is formed and a second dielectric sheet on which a second electrode pattern placed opposite said first electrode pattern is formed, and said capacitor is formed between said first electrode pattern and said second electrode pattern.

6. The antenna switch module according to claim 5, wherein said first electrode pattern is provided closer to said semiconductor chip than said second electrode pattern in said dielectric layered body.

7. The antenna switch module according to claim 5, wherein said second electrode pattern is provided closer to said semiconductor chip than said first electrode pattern in said dielectric layered body.

8. The antenna switch module according to claim 2 or 4, wherein said first dielectric sheet is placed on said dielectric layered body except its top layer, and said first electrode pattern has a shape for including at least the entire contours of said semiconductor chip if projectively viewed from the top surface of said dielectric layered body.

9. The antenna switch module according to claim 8, wherein, on said dielectric layered body, a third electrode pattern formed on a third dielectric sheet placed on said first dielectric sheet overlapping said first electrode pattern if projectively viewed from the top surface is connected to a fourth electrode pattern formed on a fourth dielectric sheet placed under said first dielectric sheet through an opening formed on said first electrode pattern so as not to short the ground potential.

10. The antenna switch module according to claim 7, wherein said third electrode pattern is connected to an arbitrary terminal of said semiconductor chip, and said fourth electrode pattern is the same as said second electrode pattern.

11. The antenna switch module according to claim 1, wherein said switch circuit has one pair or a plurality of pairs of a first field-effect transistor and a second field-effect transistor, and each of said pairs has a drain terminal of said first field-effect transistor connected to a source terminal of said second field-effect transistor and the drain terminal of said second field-effect transistor connected to a ground potential via said capacitor.

12. The antenna switch module according to claim 1, wherein said switch circuit has one pair or a plurality of pairs of a first field-effect transistor and a second field-effect transistor, and each of said pairs has a source terminal of said first field-effect transistor connected to a drain terminal of said second field-effect transistor and the source terminal of said second field-effect transistor connected to a ground via said capacitor.

13. The antenna switch module according to claim 5, wherein a combination of electrode patterns of certain dielectric sheets of said plurality of dielectric sheets forming said dielectric layered body forms one high-frequency filter or a plurality of high-frequency filters.

14. The antenna switch module according to claim 13, wherein said first electrode pattern has a shape for including all the electrode patterns of said certain dielectric sheets forming said high-frequency filters if projectively viewed from the top surface of said dielectric layered body.

15. An all-in-one communication module comprising:
the antenna switch module according to claim 1;
a low-pass filter of said transmitting portion provided in said dielectric layered body; and

a power amplifier for supplying a transmitting signal to said low-pass filter provided on said dielectric layered body.

16. The all-in-one communication module according to claim 15, further comprising:

a band pass filter of said receiving portion provided in said dielectric layered body; and

a voltage-controlled oscillator for supplying a transmitting signal to said power amplifier on the transmitting side provided on said dielectric layered body.

17. A communication apparatus comprising:

the antenna switch module according to claim 1;

an antenna connected to said antenna switch module;

the transmitting portion for supplying the transmitting signal to said antenna switch module; and

the receiving portion.

18. A communication apparatus comprising:

the all-in-one communication module according to one of claims 15 and 16; and

an antenna connected to said low-pass filter and/or said band pass filter.

19. A method for manufacturing an antenna switch module comprising a switch circuit for switching between transmitting and receiving of a signal between an antenna and a transmitting portion or a receiving portion and having a shunt circuit, wherein the method has the steps of:

placing a capacitor of the shunt circuit of said switch circuit on a dielectric layered body; and

placing remaining elements of said switch circuit on a semiconductor chip mounted on said dielectric layered body.

20. The method for manufacturing the antenna switch module according to claim 19, wherein said semiconductor chip is mounted face down on a top surface of said dielectric layered body.

21. The method for manufacturing the antenna switch module according to claim 19 or 20, wherein said dielectric layered body is manufactured by laminating a plurality of dielectric sheets including a first dielectric sheet on which a first electrode pattern connected to a ground potential is formed and a second dielectric sheet on which a second electrode pattern placed opposite said first electrode pattern is formed, and said capacitor is formed between said first electrode pattern and said second electrode pattern.